ARTIFICIAL INTELLIGENCE AND PATRONS' EXPERIENCES WITH ONLINE REFERENCE SERVICES IN NORTH AMERICAN LIBRARIES

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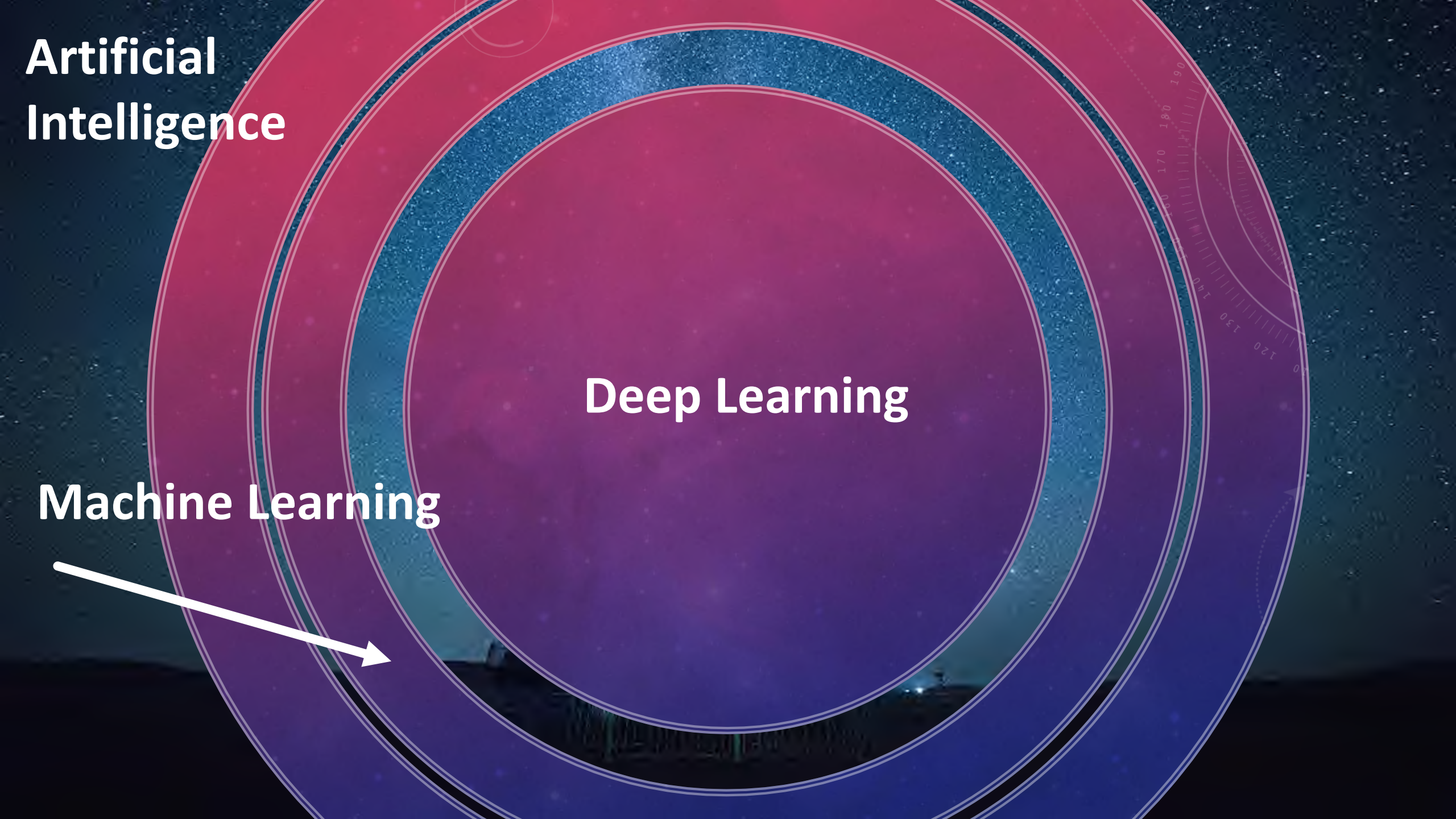
HUMAN *VS* ARTIFICIAL INTELLIGENCE

Human Brain	Artificial Brain
Limited memory 1.6 gigabytes (= size of one DVD movie)	Higher storing and access memory
Limited ability to process complex algorithms	Faster and more efficient in navigating complex algorithms
Stress and emotions affect the performance	No emotional involvement
Learn by observation and memorization followed by predictions	Trained on examples and algorithms to make predictions


Artificial Intelligence
Deep Learning
Machine Learning

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING: BUSINESS APPLICATIONS

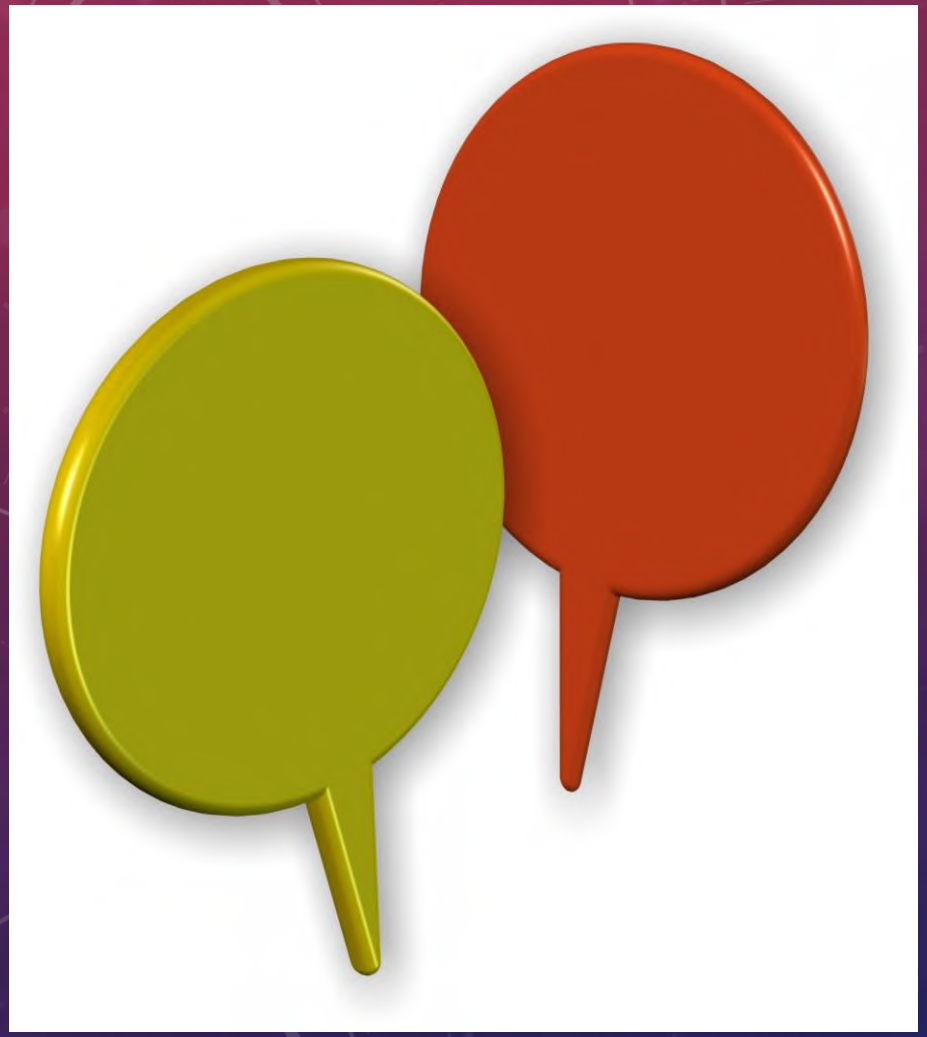
Medicine: Disease Prediction & Diagnosis

Law Enforcement: Speech Recognition, Fraudulent Bank Activity

Text- & Image Recognition: DeepMind, Facebook, Google, Alexa

Movie recommendations: Netflix, Amazon Prime

ARTIFICIAL INTELLIGENCE IN LIBRARIES: ONLINE REFERENCING SERVICES



- **ABOUT 85 PERCENT OF REFERENCE QUESTIONS COULD BE OUTSOURCED TO MACHINES (SOARES, 2020)**
- **LIBRARIES' WEBSITES ARE THE FIRST POINT OF CONTACT FOR NEW COMMUNITY MEMBERS**

https://www.publicdomainpictures.net/en/view-image.php?image=135492&picture=chat-bubbles

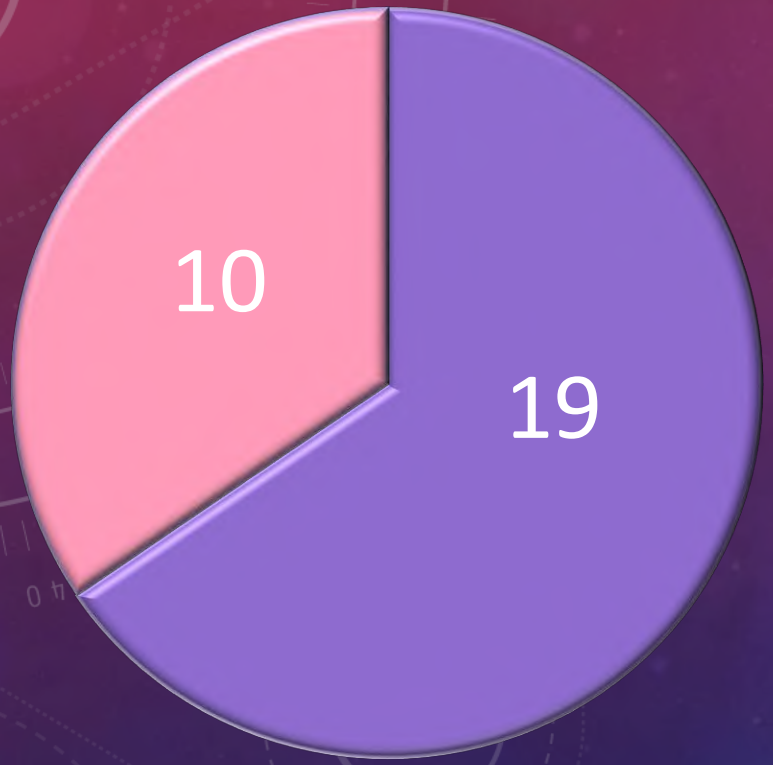
STUDY OBJECTIVES

Evaluation of online chat reference services in libraries:

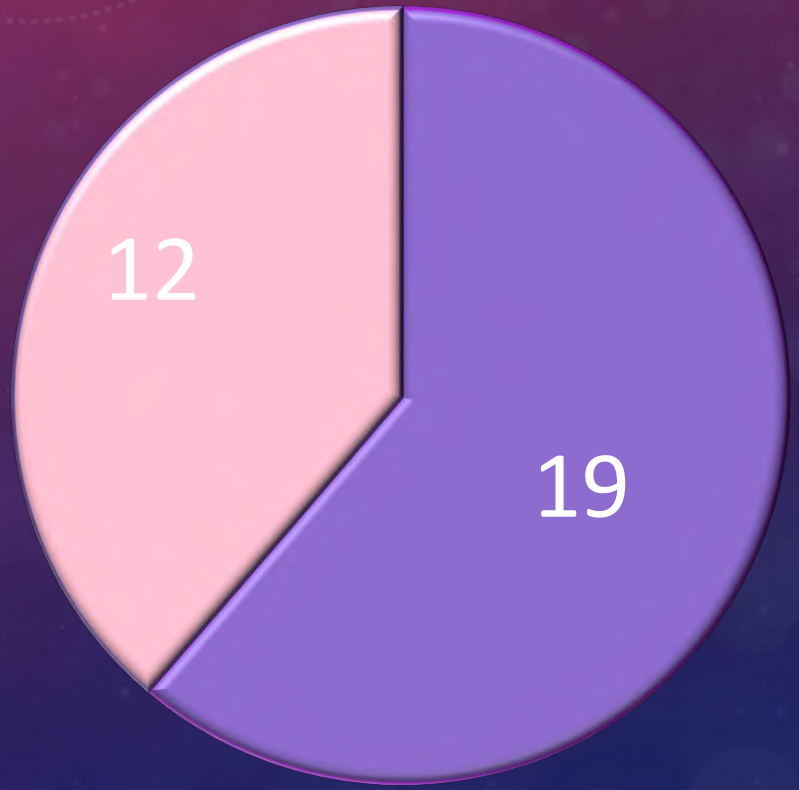
- Identify the use of artificial intelligence
- Check if open to the public
- Determine the use of performance metrics

SAMPLE: 60 NORTH AMERICAN LIBRARIES

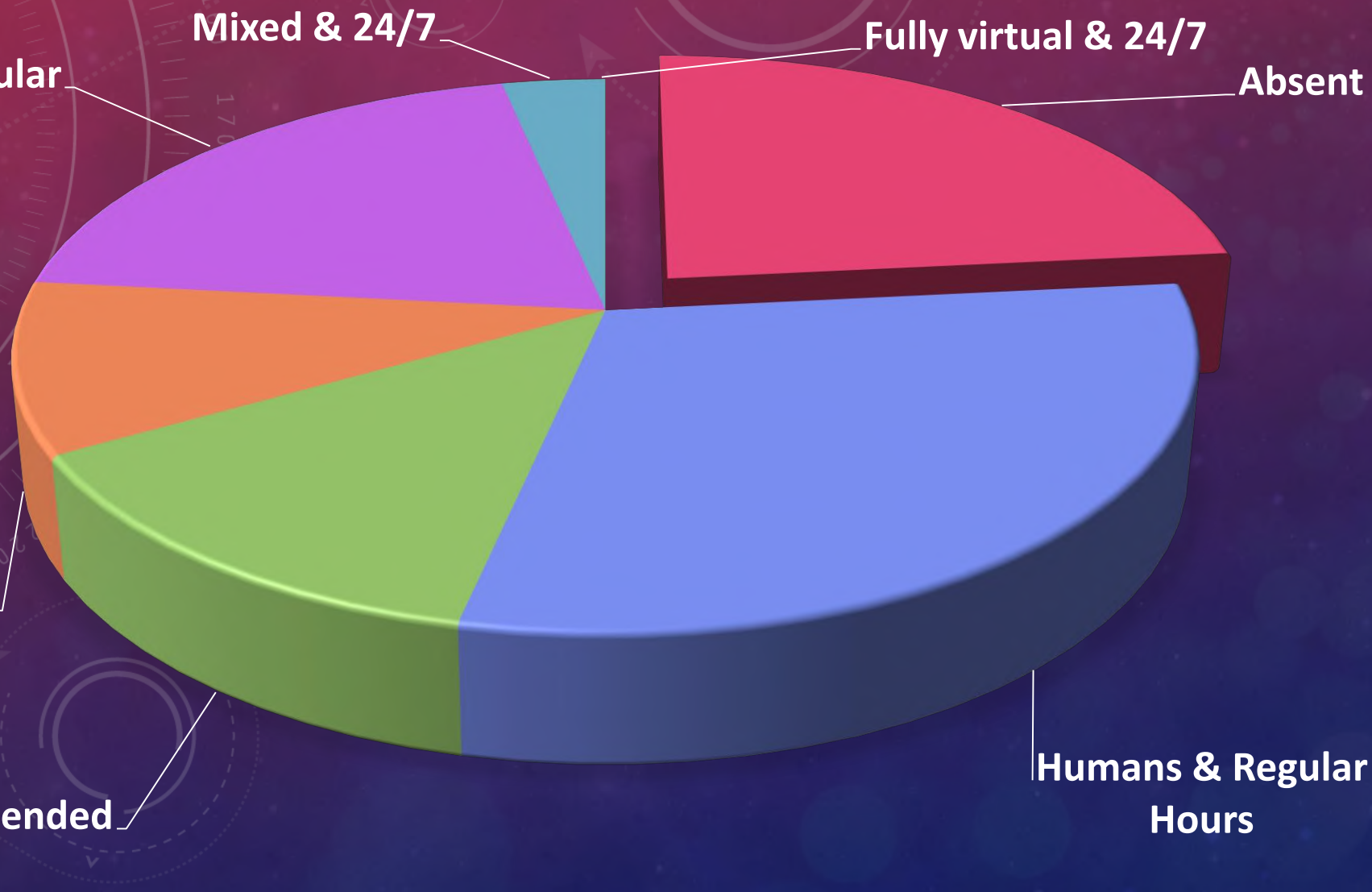
American Libraries



Canadian Libraries



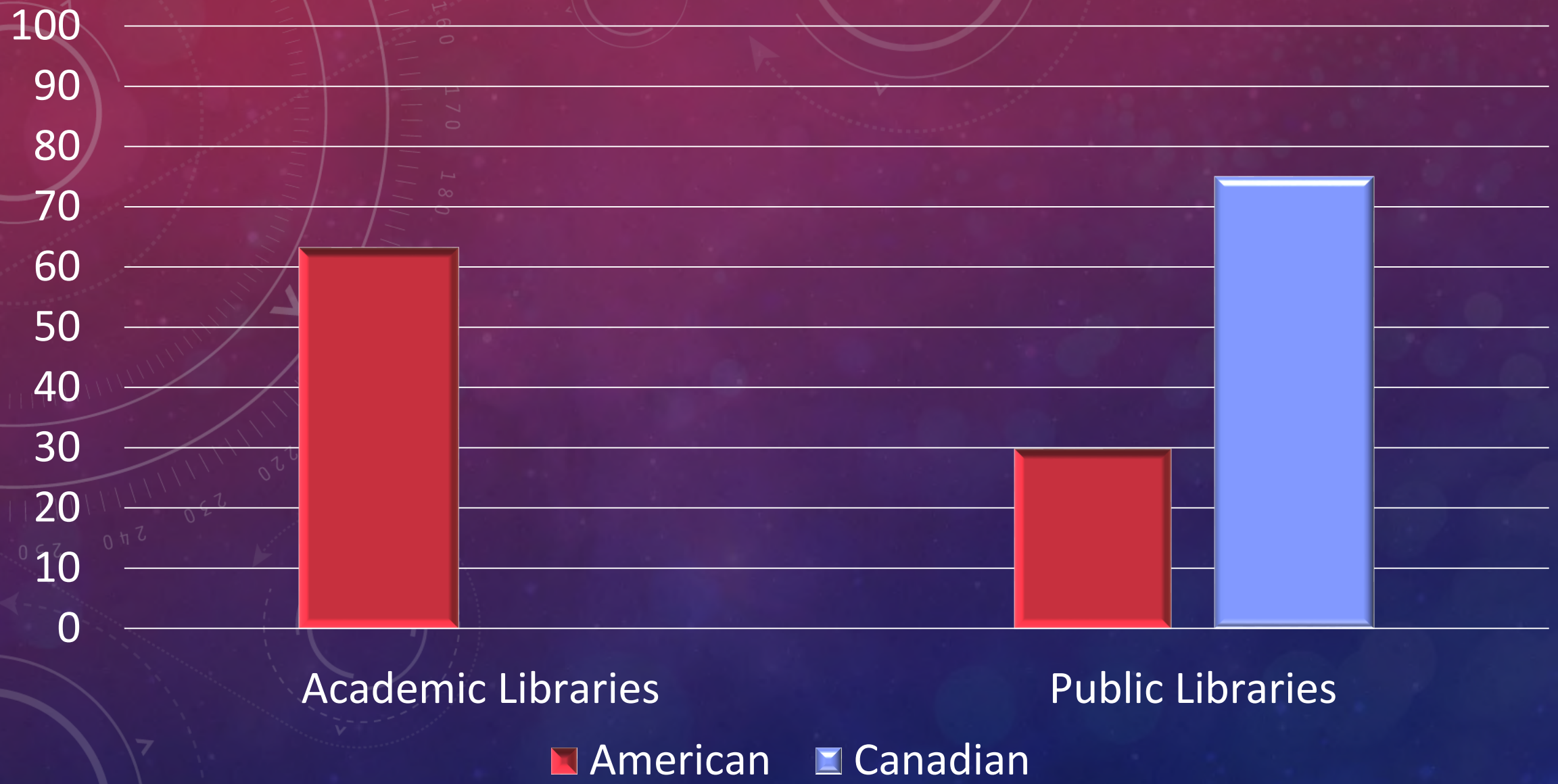
THE USE OF ONLINE CHAT SERVICES IN NORTH AMERICAN LIBRARIES



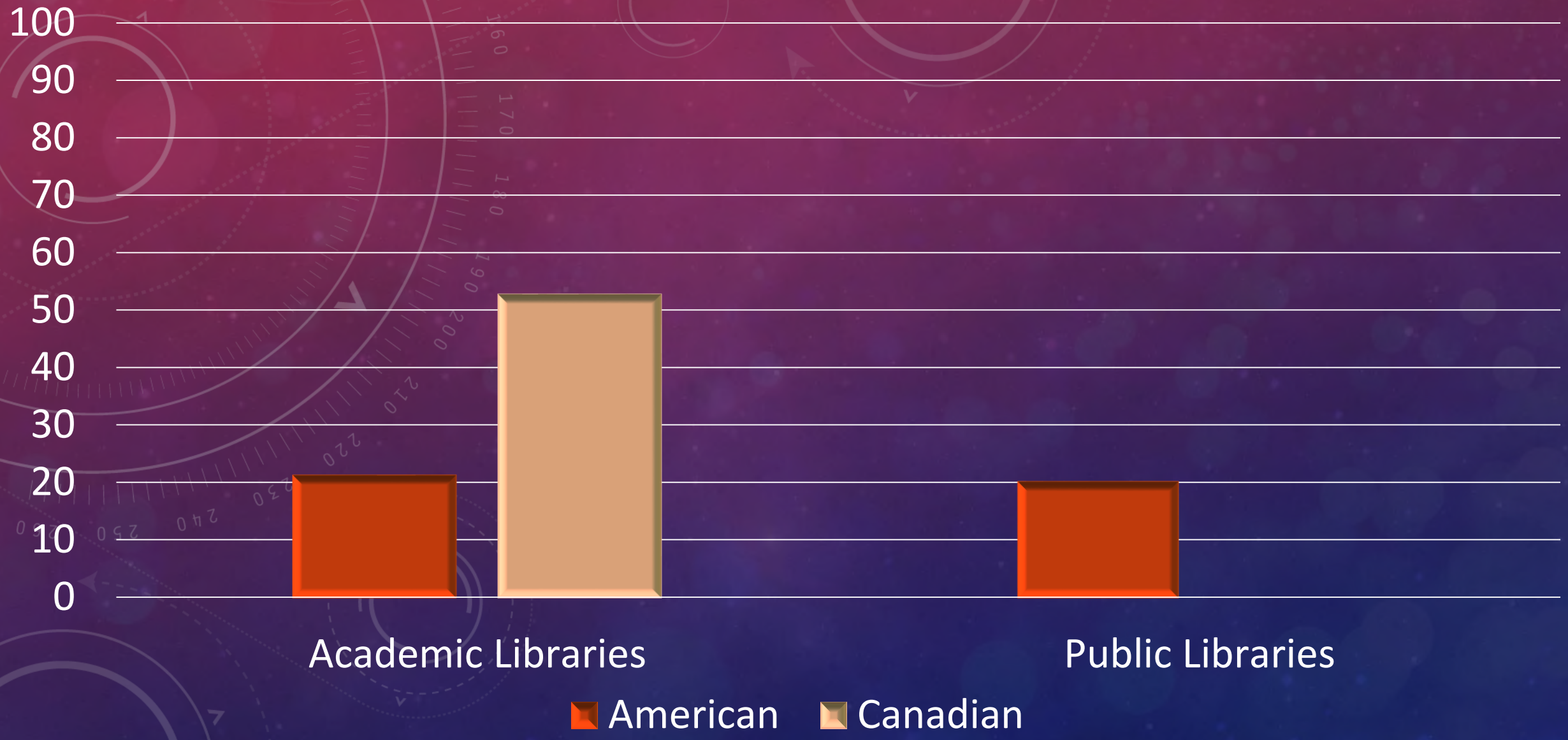
ACADEMIC AND PUBLIC LIBRARIES SIGNIFICANTLY DIFFER IN THEIR USE OF ONLINE REFERENCE SERVICES

Academic libraries (*M* = 3.29, *SD* = 1.35) were more likely to use AI assistance with their chat services than public libraries (*M* = 2.05, *SD* = 1.62, *t*(58) = 3.19, *p* = .002)

EMAIL REQUIREMENT FOR PATRONS TO ACCESS LIBRARY SERVICES



REQUEST FOR FEEDBACK

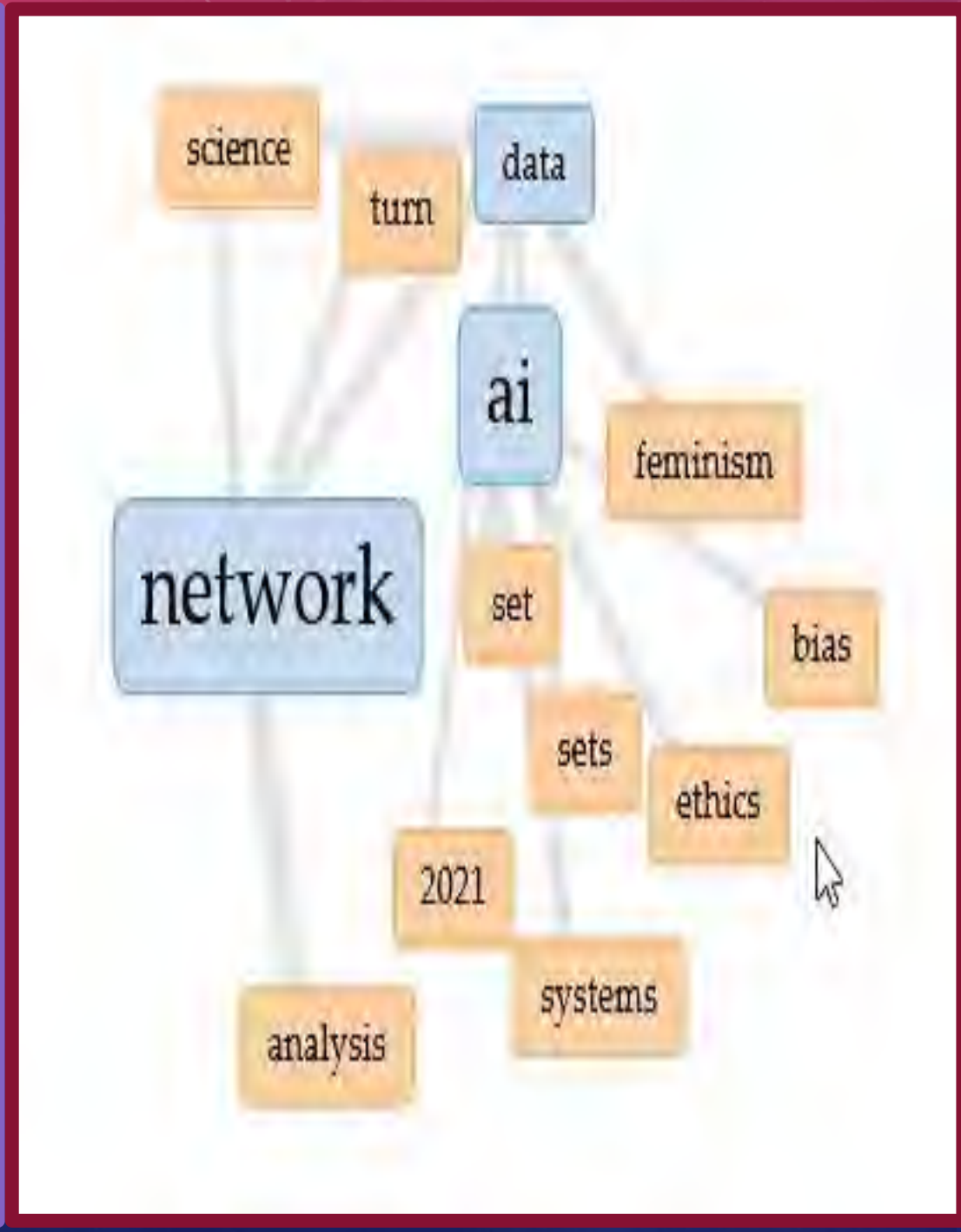


CONTENT MINING ANALYSIS

- **AI4LAM** ***(MAY 1, 2020 – OCTOBER 10, 2021)***
- **29 RESOURCES**

Slack Channel, 2021

network
machine
science
data
human
learning
use
systems
work
ai
google
networks
social
research
humanities
information
digital
world
knowledge
risk
power
way
said
reference
technology
analysis


science
turn
data
ai
feminism
network
set
bias
sets
ethics
2021
systems
analysis

SUBJECT EXPERT INTERVIEW

MIKE JONES,

DIRECTOR OF WEB AND AUTOMATION TECHNOLOGIES,

USC LIBRARIES

https://libraries.usc.edu/person/mike-jones

CONCLUSION ON AI USE IN LIBRARIES

This study supports the use of AI applications by libraries

https://en.wikipedia.org/wiki/File:Artificial-Intelligence.jpg

- AI is already part of our lives; libraries do not keep up with other businesses
- Three quarters of libraries already use chat bots/virtual assistance
- Academic libraries are most likely to implement AI

CONCLUSION ON ACCESS TO ONLINE REFERENCE SERVICES

This study advocates for the removal of barriers to access reference services

https://en.wikipedia.org/wiki/File:Open_Padlock.svg

- About a third North American libraries are closed to those without email
- Academic libraries: All Canadians are open *vs* to 37% of Americans
- Public libraries: Only a quarter of Canadian open *vs* 70% Americans

CONCLUSION ON COLLECTION OF FEEDBACK

This study recommends for libraries to collect feedback about their online services

https://laencounters2017.voices.wooster.edu/2017/10/29/wikipedia-feedback/

- About a third North American libraries do not collect feedback
- Lost opportunity to collect output and outcome performance metrics
- Feedback helps to improve the quality of services and attract new members

CONCLUSION ON ARTIFICIAL INTELLIGENCE BIASES

Machines are not biased, humans are

https://en.wikipedia.org/wiki/File:Artificial-Intelligence.jpg

- Supervised or mixed ML techniques may reduce biases
- Stratified random sampling for ML may reduce biases
- Diverse sampling is needed for machine training sets

CONCLUSION ON PRIVACY AND CONFIDENTIALITY

USC and Amazon Establish Center for Secure and Trusted Machine Learning

Center to support novel approaches to trust-centric machine learning and AI innovation

https://viterbischool.usc.edu/news/2021/01/usc-and-amazon-establish-center-for-secure-and-trusted-machine-learning

CLOSING REMARKS

"Society is changing, one learning algorithm at a time."

Domingos, 2015

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